

## GENERATING AND DECODING GRAPHICAL BAR CODES

### ABSTRACT

Systems and methods for automatically generating and decoding a graphical bar code (i.e., an image that contains inconspicuous graphical modulations that encode embedded information) are described. In one aspect, an invertible graphical operation is applied between regions of a base image and information-encoding graphical templates that are selected from a predefined template set to produce a graphical bar code with regions from which graphical templates are recoverable by applying an inverse graphical operation between graphical bar code regions and corresponding base image regions. In another aspect, an invertible graphical operation is applied between regions of a graphical bar code and corresponding regions of a base image to produce a set of measurement blocks, and information-encoding graphical templates corresponding to the set of measurement blocks with the highest estimated probability is selected from a predefined template set.

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